Microeconomics
(2011 Entrance Exam for the MA in Economics)

Multiple-choice questions. (2.5 points each.)

Answer the following questions in their numeric order. No point will be given if answers are out of sequence.

1. If she spends her entire budget, Heidi can afford 39 peaches and 12 pears. She can also just afford 24 peaches and 17 pears. The price of peaches is 9 cents. What is the price of pears in cents?
(A) 12 cents (B) 37 cents (C) 27 cents (D) 3 cents (E) None of the above.

2. If there are only two goods, if more of good 1 is always preferred to less, and if less of good 2 is always preferred to more, then indifference curves
(A) slope downward. (B) slope upward. (C) may cross. (D) could take the form of ellipses. (E) None of the above.

3. Ambrose has the utility function $U(x_1, x_2) = 4x_1^{0.5} + x_2$. If Ambrose is initially consuming 25 units of nuts and 17 units of berries, then what is the largest number of berries that he would be willing to give up in return for an additional 39 units of nuts?
(A) 8 (B) 12 (C) 25 (D) 6 (E) 3

4. Ollie has a utility function $U(x, y) = (x+2)(y+3)$. The price of x is \$1 and the price of y is \$1. When he maximizes his utility subject to his budget constraint, he consumes positive amounts of both goods. Ollie consumes
(A) exactly as many units of x as of y. (B) 1 more unit of x than he consumes of y. (C) 1 more unit of y than he consumes of x. (D) 2 more units of x than he consumes of y. (E) None of the above.

5. Angela consumes only two goods, x and y. Her income doubles and the prices of the two goods remain unchanged. Assuming that she is a utility maximizer and likes both goods,
(A) she will consume more of both goods. (B) the ratio of her consumption of x to y remains constant. (C) her utility doubles. (D) if her preferences are convex, she must consume more x. (E) None of the above.

6. If there are two goods and if income doubles and the price of good 1 doubles while the price of good 2 stays constant, a consumer's demand for good
(A) 1 will increase only if it is a Giffen good for her. (B) 2 will decrease only if it is a Giffen good for her. (C) 2 will increase only if it is an inferior good for her. (D) 2 will

decrease only if it is an inferior good for her. (E) None of the above.

7. Wilma Q. has a utility function $U(x_1, x_2) = x_1^2 + 1.5x_1x_2 + 30x_2$. The prices are $P_1 = \$1$ and $P_2 = \$1$. For incomes between \$20 and \$60, the Engel curve for good 2 is (A) upward sloping. (B) downward sloping. (C) vertical. (D) upward sloping for incomes between \$20 and \$40 and downward sloping between \$40 and \$60. (E) downward sloping for incomes between \$20 and \$40 and upward sloping between \$40 and \$60.

8. Which of the following utility functions represent preferences of a consumer who does not have homothetic preferences?
(A) $U(x,y) = xy$. (B) $U(x,y) = x + 2y$. (C) $U(x,y) = x + y^5$. (D) $U(x,y) = \min\{x,y\}$. (E) More than one of the above.

9. When prices are (\$2, \$4), Ms. Consumer chooses the bundle (7, 9), and when prices are (\$15, \$3), she chooses the bundle (10, 3). Is her behavior consistent with the weak axiom of revealed preference?
(A) Yes. (B) No. (C) We would have to observe a third choice to be able to say. (D) We can't tell because we are not told her income in the two cases. (E) None of the above.

10. Charlie's utility function is $X_A X_B$. The price of apples used to be \$1 per unit and the price of bananas was \$2 per unit. His income was \$40 per day. If the price of apples increased to \$1.50 and the price of bananas fell to \$1.75, then in order to be able to just afford his old bundle, Charlie would have to have a daily income of
(A) \$23.75. (B) \$47.50. (C) \$96. (D) \$71.25. (E) \$190.

11. Walt considers x and y to be perfect substitutes. They originally cost \$10 and \$9 respectively. His income is \$720. One day the price of x drops to \$8.
(A) The income effect increases the quantity of y by 90. (B) The substitution effect increases the quantity of y by 80. (C) The substitution effect increases the quantity of x by 90. (D) The income effect increases the quantity of x by 80. (E) None of the above.

12. If the marginal cost of brewing beer is 40 cents and the profit-maximizing price is 90 cents, then the price elasticity of demand is
(A) –0.66. (B) –1.8. (C) –2. (D) –2.33. (E) –3.

13. Which of the following production functions exhibit constant returns to scale? In each case y is output and K and L are inputs. (1) $y = K^{1/2}L^{1/3}$. (2) $y = 3K^{1/2}L^{1/2}$. (3) $y = K^{1/2} + L^{1/2}$. (4) $y = 2K + 3L$.
(A) 1, 2, and 4 (B) 2, 3, and 4 (C) 1, 3, and 4 (D) 2 and 3 (E) 2 and 4.

14. Suppose that the production function is $f(x_1, x_2) = (x_1^a + x_2^a)^b$, where a and b are

positive constants. For what values of a and b is there a diminishing technical rate of substitution?
(A) For any value of a if b < 1 (B) For any values of a and b if ab < 1 (C) For any values of a and b if a > b (D) For any value of b if a < 1 (E) None of the above.

15. The production function is $f(x_1, x_2) = x_1^{1/2} x_2^{1/2}$. If the price of factor 1 is \$6 and the price of factor 2 is \$12, in what proportions should the firm use factors 1 and 2 if it wants to maximize profits?
(A) $x_1 = 12x_2$. (B) $x_1 = 0.5x_2$. (C) $x_1 = 2x_2$. (D) $x_1 = x_2$. (E) We can't tell without knowing the price of the output.

16. An orange grower has discovered a process for producing oranges that requires two inputs. The production function is $Q = \min\{2x_1, x_2\}$, where x_1 and x_2 are the amounts of inputs 1 and 2 that he uses. The prices of these two inputs are $w_1 = \$5$ and $w_2 = \$2$, respectively. The minimum cost of producing 140 units is therefore
(A) \$980. (B) \$630. (C) \$1,400. (D) \$280. (E) \$700.

17. Nadine has a production function $4x_1 + x_2$. If the factor prices are \$12 for factor 1 and \$2 for factor 2, how much will it cost her to produce 30 units of output?
(A) \$795 (B) \$60 (C) \$90 (D) \$1,500 (E) \$75

18. The following relationship must hold between the average total cost (ATC) curve and the marginal cost curve (MC):
(A) If MC is rising, ATC must be rising. (B) If MC is rising, ATC must be greater than MC. (C) If MC is rising, ATC must be less than MC. (D) If ATC is rising, MC must be greater than ATC. (E) If ATC is rising, MC must be less than ATC.

19. A competitive firm has the short-run cost function $C(y) = 2y^3 - 16y^2 + 64y + 5$. The firm will produce a positive amount in the short run if and only if the price is greater than
(A) \$16. (B) \$64. (C) \$32. (D) \$35. (E) \$31.

20. If Green Acres Turf Farm's total cost of producing acres of sod is $TC = 4Q^2 + 25Q + 30$, the marginal cost of producing the 20th acre of sod is
(A) \$30. (B) \$25. (C) \$105. (D) \$185. (E) \$345.

21. In an oligopoly with two firms, one firm's share of the market is 70 percent. The Herfindahl-Hirschman Index is _____.
(A) 0.7 (B) 100 (C) 5,800 (D) 4,900 (E) 2,100

22. Under perfect competition, the Lerner index is equal to
(A) 0. (B) Between 0 and 1. (C) ∞. (D) 1. (E) None of the above.

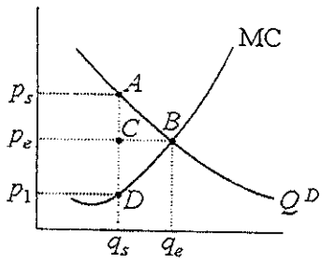
23. The line which traces out the point where the household maximized utility for a given level of income across various ratios of prices is known as the
(A) Offer curve. (B) Contract curve. (C) Pareto optimum curve. (D) Welfare curve. (E) Demand curve.

24. At the point where the price that consumers are willing to pay for additional units is equal to the price they actually pay for the commodity
(A) Marginal consumer surplus is positive. (B) Total consumer surplus is equal to zero. (C) Marginal consumer surplus is equal to zero. (D) Marginal consumer surplus is negative. (E) Total consumer surplus is equal to marginal consumer surplus.

25. Which of the following statements regarding a monopolist's profits is NOT true?
(A) In the short run, the monopolist may earn a pure above normal profit. (B) In the long run, the monopolist may earn zero pure profit. (C) In the long run, entry into the market will drive monopolist's profits to normal levels. (D) In the short run, entry barriers prevent competition from driving prices down. (E) None of the above.

26. A firm sells an identical product to two groups of consumers, children (c) and adults (a). The firm decides to pursue a third degree price discrimination strategy and maximize profits. Which of the following is necessary for profit maximization?
(A) $P_c = P_a = SMC$. (B) $MR_c = MR_a = SMC$. (C) $MR_c = MR_a$. (D) $MR_a > MR_c = SMC$.
(E) $P_c > P_a = MR_a > MR_c$

27. Refer to the figure below, with the imposition of standards, the new quantity is q_s. The net gain in producer surplus is
(A) $p_e p_s AC - DAB$ (B) $p_e p_s AC - DCB$ (C) $p_1 p_s AD$ (D) $p_1 p_s AD - DCB$ (E) ADC



28. Second degree price discrimination differs from third degree price discrimination in which of the following ways
(A) It promotes a more efficient allocation of resources and third degree does not. (B) In second degree price discrimination, price differs across the commodity unit and not across consumers. (C) In third degree price discrimination, all consumers have the same elasticity of demand. (D) Second degree price discrimination is also called perfect price discrimination and third degree is not. (E) None of the above.

29. The Prisoners' Dilemma game illustrates
(A) Where cooperation can improve the welfare of all players. (B) Rational self-interest behavior not resulting in a social optimum. (C) The dominant strategy of both players is not the preferred outcome. (D) All of the above. (E) None of the above.

30. Consider the following game where two companies are deciding about whether to charge a high or low price. The outcomes are represented as (Alpha, Beta). If this game is repeated over an infinite or uncertain horizon, the most likely observed behavior will be that

		Beta Corp.	
		Low price	High price
Alpha Corp.	Low price	(2,2)	(5,1)
	High price	(1,5)	(3,3)

(A) Both firms charge a low price. (B) Only Alpha charges a low price. (C) Only Beta charges a low price. (D) Both firms charge a high price. (E) None of the above.

31. If both firms behave as leader firms, then
(A) Cournot equilibrium results. (B) Stackelberg equilibrium results. (C) Stackelberg disequilbrium results. (D) Bertrand equilibrium results. (E) Sub-game perfect equilibrium results.

Question 32 – 33 refer to the following statement.
Suppose that spring water has zero marginal cost and that market demand is $Q = 12 - P$.

32. What is the profit maximizing price in a monopoly market?
(A) 12 (B) 4 (C) 6 (D) 8 (E) 10

33. What will be the price of the industry is a Cournot market?
(A) 12 (B) 4 (C) 6 (D) 8 (E) 10

34. Which of the following statements regarding the lemons problem is true?
(A) Symmetric information prevents buyers from distinguishing reliable cars from lemons. (B) The market is unable to price discriminate across quality differences. (C) The supple curves for lemons and reliable cars are the same. (D) Both (A) and (B) are correct. (E) Both (A) and (C) are correct.

35. Consider a market in which high quality and low quality used cars are sold. Buyers do not know the quality of the car prior to the purchase but the sellers do. Compared to a situation where the quality is known to both the buyers and sellers, this situation would
(A) Make no difference. (B) Increase the percentage of high quality cars sold. (C) Increase the percentage of low quality cars sold. (D) Cause the average price to rise. (E) None of the above.

36. The "free-rider problem" of public goods refers to an individual
(A) Refusing to pay taxes. (B) Receiving the benefits of a non-rival commodity without paying for them. (C) Overusing collective goods. (D) All of the above. (E) None of the above.

37. In a dominant-firm oligopoly, _____ the quantity which makes marginal revenue equal to marginal cost, and _____ the remaining quantity demanded.
(A) smaller firms produce; the dominant firm produces (B) the monopoly firm produces; the monopolistic competitive firms produce (C) the monopolistic competitive firm produces; the smaller firms produce (D) the dominant firm produces; the smaller firms produce (E) the monopoly firm produces; the dominant firm produces

Question 38 – 40 refer to the following statement.
Suppose that the domestic demand for computer chips is $p^d = 110 - q^d$ and the domestic supply is $p^s = 10 + q^s$. Foreign suppliers would be willing to supply any number of chips at a price of $30. The government is contemplating three possible policies:
Policy I: The government decides to ban imports of chips.
Policy II: Imports of chips are allowed with no tariff.
Policy III: The government allows imports, but imposes a tariff of $10 per unit.

38. For the Policy I, what is the size of the domestic producer surplus and the consumer surplus?
(A) (450, 2450) (B) (200, 3200) (C) (1250, 1250) (D) (450, 1250) (E) (200, 2450)

39. What is the size of the dead-weight loss of the Policy III?
(A) 0 (B) 100 (C) 350 (D) 700 (E) 950

40. What is the welfare-maximizing policy?
(A) Policy I. (B) Policy II. (C) Policy III. (D) Policy I and Policy II. (E) None of the above.

注意：請考生答題前，務必閱讀以下注意事項。

（1）本試卷共有 50 題單選題，依照題號順序，將答案寫在答案卷第一頁選擇題作答區對應題號的空格內（第 1～50 格）。

（2）每格答對得 2 分，答錯或未作答 0 分。

（3）答題不要求任何計算過程，只依答案格內的答案對錯給分。

1. （以下 16 題均為 *IS-LM* 模型之相關題） Keynesian *IS-LM* 模型之 *IS* 表商品市場的均衡：$Y=C+I+G$，其中 Y 為所得、C 為消費、I 為投資、G 為政府支出；*LM* 表貨幣市場的均衡。依照 Keynes 的流動性偏好說，其函數 $L(Y,r)$，式中 r 為利率，請問 $L(Y,r)$ 是代表
【A】名目貨幣供給　【B】實質貨幣供給　【C】名目貨幣需求　【D】實質貨幣需求

2. Keynesian *IS-LM* 模型中，所得是一個
【A】內生變數　【B】外生變數　【C】結構參數　【D】不一定

3. Keynesian *IS-LM* 模型中，消費是一個
【A】內生變數　【B】外生變數　【C】結構參數　【D】不一定

4. Keynesian *IS-LM* 模型中，政府支出是一個
【A】內生變數　【B】外生變數　【C】結構參數　【D】不一定

5. Keynesian *IS-LM* 模型中，利率是一個
【A】內生變數　【B】外生變數　【C】結構參數　【D】不一定

6. *IS-LM* 模型之作圖時，橫軸與縱軸之變數分別是
【A】物價、所得　【B】匯率、所得　【C】利率、物價　【D】所得、利率

7. 假設 *IS-LM* 模型之交點原為 *e* 點，問其他條件不變下，利率的上升將使 *IS* 曲線
【A】右移　【B】左移　【C】不動　【D】不能確定

8. 假設 *IS-LM* 模型之交點原為 *e* 點，問其他條件不變下，利率的上升將使 *LM* 曲線
【A】右移　【B】左移　【C】不動　【D】不能確定

9. 假設 *IS-LM* 模型之交點原為 *e* 點，問其他條件不變下，物價的上升將使 *IS* 曲線
【A】右移　【B】左移　【C】不動　【D】不能確定

10. 假設 *IS-LM* 模型之交點原為 *e* 點，問其他條件不變下，物價的上升將使 *LM* 曲線
【A】右移　【B】左移　【C】不動　【D】不能確定

（請翻次頁，繼續作答）

11. 假設 *IS-LM* 模型之交點原為 *e* 點，問其他條件不變下，物價的上升將使原均衡點 *e* 點變成
【A】商品市場的超額供給　【B】貨幣市場的超額供給
【C】商品市場的超額需求　【D】貨幣市場的超額需求

12. 假設 *IS-LM* 模型之交點原為 *e* 點，問其他條件不變下，物價的上升將使原均衡點 *e* 點向 ____ 方移動
【A】右上　【B】左下　【C】右下　【D】左上

13. 假設 *IS-LM* 模型之交點原為 *e* 點，問其他條件不變下，政府支出的減少將使原均衡點 *e* 點變成
【A】商品市場的超額供給　【B】貨幣市場的超額供給
【C】商品市場的超額需求　【D】貨幣市場的超額需求

14. 假設 *IS-LM* 模型之交點原為 *e* 點，問其他條件不變下，政府支出的減少將使原均衡點 *e* 點向 ____ 方移動
【A】右上　【B】左下　【C】右下　【D】左上

15. 考慮開放經濟的 *IS-LM* 模型，假設貶值可以改善貿易收支，*IS-LM* 模型之交點原為 *e* 點，問其他條件不變下，本國幣升值將使 *IS* 曲線
【A】右移　【B】左移　【C】不動　【D】不能確定

16. 假設貶值可以改善貿易收支，*IS-LM* 模型之交點原為 *e* 點，問其他條件不變下，本國幣升值將使原均衡點 *e* 點變成
【A】商品市場的超額供給　【B】貨幣市場的超額供給
【C】商品市場的超額需求　【D】貨幣市場的超額需求

17. 考慮開放經濟外匯市場的供需，假設本國央行決定採取浮動的匯率制度，若預期人民幣將大幅升值，則本國的貨幣會
【A】升值　【B】貶值　【C】不動　【D】無法確定

18. 考慮開放經濟外匯市場的供需，假設本國央行決定採取固定的匯率制度，若預期人民幣將大幅升值，則本國的國際收支為
【A】盈餘　【B】赤字　【C】不動　【D】視有無沖銷而定

19. 假設一國外匯市場供需均衡時的匯率為每一塊錢美金兌換 100 元該國貨幣，假設該國政府採取固定的匯率制度，且將匯率定在每一塊錢美金兌換 110 元該國貨幣，則該國的貨幣
【A】被高估　【B】被低估
【C】應該貶值　【D】【A】和【C】兩者皆對

20. 目前我國的匯率制度為
【A】固定匯率制度　【B】浮動匯率制度
【C】管理的浮動匯率制度　【D】攀爬釘住的匯率制度

（請翻次頁，繼續作答）

21. 近二年下列國家何者平均每人所得（以美金計）最高？
【A】台灣　【B】美國　【C】中國　【D】日本

22. 過去十年，下列經濟體何者經濟成長率最高？
【A】台灣　【B】歐元區國家　【C】中國　【D】日本

23. 去年一年，下列經濟體何者貨幣升值最多？
【A】台灣　【B】歐元區國家　【C】中國　【D】日本

24. 2010 年底下列國家何者平均每個人擁有的外匯存底最多？
【A】台灣　【B】德國　【C】中國　【D】日本

25. 關於「瓦拉氏法則」(Walras' law)，下列何項敘述為真？
【A】體系的最後一個市場（第 N 個市場）不均衡時，前面（N-1）個市場也不可能均衡
【B】商品市場若已均衡，則貨幣市場亦均衡
【C】體系的全部市場（N 個市場）超額需求加總為零
【D】以上皆非

26. 某一經濟的生產函數為 $Y=9K^{0.5}N^{0.5}$，勞動供給為 $N^s=100w^2$，其中 w 表實質工資。當資本存量固定在 $K=25$ 時，試問競爭性勞動市場均衡時的均衡勞動 n^* 與實質工資 w^* 各為何？
【A】$n^*=100,\quad w^*=1.$　【B】$n^*=225,\quad w^*=1.5.$
【C】$n^*=400,\quad w^*=2.$　【D】$n^*=625,\quad w^*=2.5.$

27. 承第 26 題。若政府對廠商每僱用一單位勞動，補貼廠商 4 單位實質商品。試問補貼政策實施後的均衡實質工資 w^{**} 與產出 Y 各為何？
【A】$w^{**}=4.5,\quad Y=2025.$　【B】$w^{**}=4,\quad Y=1800.$
【C】$w^{**}=3.5,\quad Y=1575.$　【D】$w^{**}=3,\quad Y=1350.$

28. 承第 26 題。假設政府對提供勞務者給予實質薪資補貼，勞動供給可以寫成 $N^s=100[(1+s)w]^2$，s 表示每單位勞動的實質補貼。為得到與第 27 題相同的產出水準，政府應做的實質補貼 s 是多少？
【A】$s=2.$　【B】$s=4.$　【C】$s=6.$　【D】$s=8.$

29. 承第 26 題。若政府對提供勞務者課徵勞動所得稅，勞動供給改成 $N^s=100[(1-t)w]^2$，t 表示勞動所得稅率，$0<t<1$。與第 26 題的經濟比較，下列敘述何者正確？
【A】實質工資降低、勞動量增加、產出增加　【B】物價水準在課稅前後不變
【C】實質工資增加、勞動量減少、產出減少　【D】物價水準較課稅前的第 26 題經濟低

30. 關於「古典二分法」(classical dichotomy)，下列敘述何者正確？
【A】生產面技術進步不會影響物價變動　【B】貨幣供給量增加不會造成通貨膨脹
【C】貨幣流通速度的快慢不會影響實質國內生產毛額　【D】資本存量增加不會影響實質工資

（請翻次頁，繼續作答）

31. 某一經濟目前實質國內生產毛額為10,000，該經濟的資本份額（capital share）與勞動份額（labor hare）分別為0.4與0.6。若該經濟預期將有10%的資本成長，3%的勞動成長以及5%的技術進步，則該經濟預期的實質國內生產毛額將為
【A】14,500.　【B】11,220.　【C】11,080.　【D】10,780.

32. 由 Solow 成長模型可知，當（資本/勞動）比值增加時，
【A】必然增加 steady state 每單位勞動的消費量
【B】必然減少 steady state 每單位勞動的消費量
【C】若該比值低於黃金定律（golden rule）下對應比值，則會增加 steady state 每單位勞動的消費量
【D】若該比值低於黃金定律（golden rule）下對應比值，則會減少 steady state 每單位勞動的消費量

33. 某經濟有新古典生產函數：$Y=10K^{0.5}(AN)^{0.5}$，A 表技術，K 和 N 分別為資本和勞動。若人口成長率為 3%，儲蓄率為 40%，技術進步率為 6%，資本折舊率為 1%。試問欲維持每有效勞動力的資本（K/AN）為固定值所需做的投資是多少？
【A】1,600.　【B】640.　【C】400.　【D】160.

34. 承第 33 題。試問在黃金定律（golden rule）之下的每有效勞動力的消費量是多少？
【A】300.　【B】500.　【C】1,000.　【D】2,500.

35. 承第 34 題。該經濟若想達到黃金定律（golden rule）之下的每有效勞動力的消費量，儲蓄率應該是多少？
【A】60%.　【B】50%.　【C】40%.　【D】30%.

36. 承第 33 題。若 k^* 表示 steady-state 下每有效勞動力的資本存量（K/AN）
【A】k^* 隨著人口成長率的增加而增加　【B】k^* 隨著儲蓄率的增加而增加
【C】k^* 隨著技術進步率的增加而增加　【D】k^* 隨著資本折舊率的增加而增加

37. 承第 33 題。該經濟在 steady-state 下總產出的成長率等於
【A】10%.　【B】9%.　【C】6%.　【D】3%.

38. 承第 33 題。該經濟在 steady-state 下每人產出（Y/N）的成長率等於
【A】10%.　【B】9%.　【C】6%.　【D】3%.

39. 在 100 個人的兩期模型中，假設每個人的效用函數為 $U(c_1,c_2)=\ln c_1+\ln c_2$。每個人的兩期所得分別為 $y_1=6$ 與 $y_2=12$，面對的兩期定額稅分別為 $t_1=2$ 與 $t_2=4$。假設政府第 1 期支出 $G_1=300$，第 2 期支出為 G_2，政府在第 1 期可發行公債融通赤字，公債利率與民間借貸利率相同。該經濟沒有貨幣，且商品無法儲存。試問滿足競爭性均衡的實質淨利率為何？
【A】3.　【B】1.5.　【C】0.5.　【D】0.05.

40. 承第 39 題。試問政府發行了多少公債 B？又滿足政府預算下的第 2 期政府支出 G_2 等於多少？
【A】$B=100;\ G_2=0.$　【B】$B=0;\ G_2=100.$
【C】$B=100;\ G_2=300.$　【D】$B=300;\ G_2=100.$

（請翻次頁，繼續作答）

41. 承第39題。當政府宣告第1期的定額稅下降為$t_1'=1$時，滿足李嘉圖均等定理（Ricardian equivalence theorem）下的第2期定額稅，將會上升或下降多少？
【A】下降2單位，$t_2'=2$
【B】下降1單位，$t_2'=3$
【C】上升2單位，$t_2'=6$
【D】上升4單位，$t_2'=8$

42. 若兩期最適消費c_t與c_{t+1}滿足以下關係：$E(c_{t+1}|I_t)=c_t$，其中I_t是t期的訊息集合。下列敘述何者正確？
【A】下期消費等於本期消費
【B】兩期之間的消費變化是無法預測到的隨機變動
【C】消費行為符合「隨機漫步」（random walk）的消費假說
【D】【B】和【C】皆正確

43. 在兩期投資模型中，當第二期生產面臨正向衝擊，使第二期生產力提高時，對第一期各市場的影響，不包括下列哪一項？
【A】第一期商品市場的總合需求增加
【B】第一期商品市場的均衡實質利率增加
【C】第一期勞動市場的均衡實質工資增加
【D】第一期勞動市場的均衡就業量增加

44. 下列關於投資決定何者是正確？
【A】實質利率下降，最適資本存量增加，進而使投資增加
【B】資本折舊率下降，資本使用成本下降，進而使投資減少
【C】預期未來較高的邊際資本生產力，將對資本存量需求減少，因此投資亦減少
【D】提高投資者稅賦減免，將使資本之稅後調整使用成本增加，並使投資減少

45. 蔡先生擬應用 Tobin 資產選擇理論，決定其20萬元的財富如何分配於貨幣與債券兩種資產。若持有貨幣沒有報酬，而持有一元債券的報酬為固定利率2%，再加上會變動但未知的資本利得。已知資本利得期望值$\mu_g=2\%$，變異數$\sigma_g^2=0.04$。蔡先生對資產的效用取決於每一元財富的預期報酬R以及每一元財富的風險σ_T：$U(R,\sigma_T)=(0.05-0.2\sigma_T)R$。試問蔡先生在資產選擇上是：
【A】風險趨避者
【B】風險愛好者
【C】風險中立者
【D】【A】、【B】、【C】皆有可能

46. 承第45題。蔡先生如何分配其20萬元的財富？
【A】三分之一持有貨幣，三分之二持有債券
【B】三分之一持有債券，三分之二持有貨幣
【C】持有貨幣$125,000元，債券$75,000元
【D】持有債券$125,000元，貨幣$75,000元

47. 承第45題。以蔡先生的偏好，當利率或資本利得的變異數改變對其資產分配的影響，下列敘述何者正確？
【A】利率上升，持有貨幣和債券的比例不變
【B】利率上升，持有貨幣比例下降，持有債券比例增加
【C】資本利得的變異數增加，持有貨幣比例增加，持有債券比例下降
【D】【A】和【C】皆正確

（請翻次頁，繼續作答）

48. 根據新興古典（New Classical）理論，事先被大眾預期的緊縮性貨幣政策會使
【A】產出減少　　【B】物價不變
【C】名目工資減少　　【D】實質工資增加

49. 新興古典（New Classical）的勞動市場對未預期到的物價上漲之反應，下列敘述何者正確？
【A】名目工資上漲、實質工資下跌、勞動就業量增加
【B】名目工資上漲、實質工資上漲、勞動供給增加
【C】名目工資上漲、實質工資下跌、勞動供給減少
【D】名目工資上漲、實質工資不變、勞動就業量不變

50. Lucas Critique 指的是：
【A】批評沿用人民舊的行為來評估新政策的效果不正確
【B】批評假設人們有理性預期並不實際
【C】批評通貨膨脹到處都是貨幣現象的論述不正確
【D】批評貨幣中立性的論述不正確

（試題結束）

考生作答須知：請務必詳讀！

1. 請不要使用「選擇題作答區」作答。
2. 本試卷分為二部分：第一部分為填空題，共有 10 個空格，每一空格 5 分；此部分不須計算過程。第二部分為計算題，請將所有過程、步驟交代清楚。
3. 如果沒有特別指示，請將答案約分至最簡分數表示。
4. 請自行製作答題區。規定如下：請於作答區第一頁「選擇題作答區」的下方製作第 1 – 10 格答題區。作答區第二頁之後，回答第二部分的試題。第一頁第一部分之答題區格式如下：

第 1 格	第 2 格	第 3 格	第 4 格	第 5 格
第 6 格	第 7 格	第 8 格	第 9 格	第 10 格

Part I. Fill-in questions (填空題): (50%)

A. Suppose that Y has a probability density function given by

$$f(y) = \begin{cases} ky^2e^{-y/2}, & y \geq 0, \\ 0, & elsewhere, \end{cases}$$

then $k=$ __(1)__. If $W = 10Y - Y^2$, then the expected value of W is __(2)__. If $V = 10Y + 32Y^{-2}$, then the expected value of V is __(3)__.

B. Let Y denote the length of life (in thousands of minutes) of electronic components. These components frequently fail immediately upon insertion into a system. It has been observed that the probability of immediate failure is 1/5. If a component does not fail immediately, the distribution for its length of life has the exponential density function with mean 1. The expected value of Y is __(4)__ and its variance is __(5)__.

C. Suppose that A and B are two events such that $P(A) + P(B) > 1$; the smallest possible value for $P(A \cap B) =$ __(6)__. Suppose that A and B are two events such that $P(A) + P(B) < 1$; the largest possible value for $P(A \cap B) =$ __(7)__.

D. Suppose that $Y_1, Y_2, \ldots, Y_n$ constitute a random sample from a uniform distribution on the interval $(0, \theta)$, $Y_{(1)} = \min(Y_1, Y_2, \ldots, Y_n)$ and $Y_{(n)} = \max(Y_1, Y_2, \ldots, Y_n)$. We know both $\hat{\theta}_1 = (n+1)Y_{(1)}$ and $\hat{\theta}_2 = [(n+1)/n]Y_{(n)}$ are unbiased estimators for θ. The efficiency of $\hat{\theta}_2$ to $\hat{\theta}_1$ is __(8)__. The sufficient statistic for θ is __(9)__. The maximum likelihood estimator (MLE) for the variance of the underlying distribution is __(10)__.

Part II. Computation questions: (50%)

Note: You should carefully state the reasons or calculations in the following questions in order to get the points. A short answer, such as "Yes" or "No" will NOT receive any point.

1. (10%) Consider the regression model

$$y_i = \beta_0 + \beta_1 x_i + u_i \tag{1}$$

where $y_i = Y_i - \bar{Y}$ and $x_i = X_i - \bar{X}$. Show the regression line pass through the origin.(10%)

2. (15%) Consider the following regression model

$$\frac{1}{y_i} = \beta_0 + \beta_1 \frac{1}{x_i} + u_i \tag{2}$$

where $y_i \neq 0$ and $x_i \neq 0$.

(a) Is this a linear regression model?(5%)

(b) How would you estimate this model?(5%)

(c) What is the behavior of Y as X tends to infinity?(5%)

3. (25%) From annual data for the years 1969-1987, the following regression results were obtained:

$$\hat{y}_t = -859.92 + 0.647x_t - 23.195x_t^2 \qquad R^2 = 0.977 \tag{3}$$

$$\hat{y}_t = -261.09 + 0.245x_t \qquad R^2 = 0.938 \tag{4}$$

where y= U.S. expenditure on imported goods and x= personal disposal income.

(a) Discuss the properties of these models.(5%)

(b) How would you decide between the two model? Compute the F ratio.(10%)

(c) Calculate the standard error of x_t^2 in the equation (3).(10%) (Hint: Use the relationship between R^2, F, and t.)